

# **EXHIBIT 4**

**(FILED UNDER SEAL)**



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
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 P.O. Box 1450  
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## NOTICE OF ALLOWANCE AND FEE(S) DUE

79141 7590 03/30/2021  
 Morgan, Lewis & Bockius LLP (PA)(J. Zheng)  
 1400 Page Mill Road  
 Palo Alto, CA 94304

EXAMINER	
BANSAL, GURTEJ	
ART UNIT	PAPER NUMBER
2139	

DATE MAILED: 03/30/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/695,020	11/25/2019	Jefferey C. Solomon	129980-5023-US01	7514

TITLE OF INVENTION: MEMORY MODULE WITH DATA BUFFERING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	06/30/2021

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

**HOW TO REPLY TO THIS NOTICE:**

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at [www.uspto.gov/PatentMaintenanceFees](http://www.uspto.gov/PatentMaintenanceFees).**

## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

79141 7590 03/30/2021  
Morgan, Lewis & Bockius LLP (PA)(J. Zheng)  
1400 Page Mill Road  
Palo Alto, CA 94304

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/695,020	11/25/2019	Jefferey C. Solomon	129980-5023-US01	7514

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APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	06/30/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
BANSAL, GURTEJ	2139	711-105000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 \_\_\_\_\_

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 \_\_\_\_\_

3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. \_\_\_\_\_

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

**NOTE:** Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

**NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

**NOTE:** This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_



## UNITED STATES PATENT AND TRADEMARK OFFICE

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79141	7590	03/30/2021	EXAMINER	
Morgan, Lewis & Bockius LLP (PA)(J. Zheng)			BANSAL, GURTEJ	
1400 Page Mill Road			ART UNIT	
Palo Alto, CA 94304			PAPER NUMBER	
			2139	
DATE MAILED: 03/30/2021				

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**  
 (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

### Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b) (2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

<b>Notice of Allowability</b>	<b>Application No.</b> 16/695,020	<b>Applicant(s)</b> Solomon et al.	
	<b>Examiner</b> GURTEJ BANSAL	<b>Art Unit</b> 2139	<b>AIA (FITF) Status</b> No

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to claims as filed dated 11/25/2019.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-15. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

a) ☐ All      b) ☐ Some      \*c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.  
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	5. <input type="checkbox"/> Examiner's Amendment/Comment
2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>01/08/2021</u> .	6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance
3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. <input type="checkbox"/> Other _____.
4. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/GURTEJ BANSAL/ Primary Examiner, Art Unit 2139	
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Application/Control Number: 16/695,020  
Art Unit: 2139

Page 2

*Allowable Subject Matter*

1. Claims 1-15 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Claim 1 recites the limitation, "the circuitry being configurable to transfer the burst of N-bit wide data signals between the N-bit wide memory bus and the memory devices in the one of the plurality of N-bit wide ranks in response to the data buffer control signals and in accordance with an overall CAS latency of the memory module; wherein data transfers through the circuitry are registered for an additional amount of time delay such that the overall CAS latency of the memory module is greater than an actual operational CAS latency of each of the memory devices."

Said limitations are taught by the specification as originally filed. Said limitations, in combination with the other recited limitations, are not taught or suggested by the prior art of record.

Claims 2-15 depend from independent claim 1 and are considered allowable for at least the same reasons are recited above.

Janzen (US 2003/0018845) appears to be the closest prior art and teaches a memory device having a number of ranks having different burst order addressing for read and write operations. However, does not teach the limitation, "the circuitry being configurable to transfer the burst of N-bit wide data signals between the N-bit wide memory bus and the memory devices in the one of the plurality of N-bit wide ranks in response to the data buffer control signals and in

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Art Unit: 2139

Page 3

accordance with an overall CAS latency of the memory module; wherein data transfers through the circuitry are registered for an additional amount of time delay such that the overall CAS latency of the memory module is greater than an actual operational CAS latency of each of the memory devices.”

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GURTEJ BANSAL whose telephone number is (571)270-5588. The examiner can normally be reached on M-F 8am-5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Reginald Bragdon can be reached on (571)-272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR



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system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GURTEJ BANSAL/

Primary Examiner, Art Unit 2139

<b><i>Notice of References Cited</i></b>	Application/Control No. 16/695,020	Applicant(s)/Patent Under Reexamination Solomon et al.	
	Examiner GURTEJ BANSAL	Art Unit 2139	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20030018845-A1	01-2003	Janzen, Jeffery W.	G11C7/103	711/1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					


**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<b><i>Search Notes</i></b> 	<b>Application/Control No.</b> 16/695,020	<b>Applicant(s)/Patent Under Reexamination</b> Solomon et al.
	<b>Examiner</b> GURTEJ BANSAL	<b>Art Unit</b> 2139

CPC - Searched*		
Symbol	Date	Examiner
G06F13/1673.cpc. G06F12/00.cpc. G06F13/00.cpc. G06F13/4243.cpc. G06F13/4282.cpc. G11C5/04.cpc. G11C7/1072.cpc. G11C15/00.cpc.	03/25/2021	GB
G06F13/1673.cpc. G06F12/00.cpc. G06F13/00.cpc. G06F13/4243.cpc. G06F13/4282.cpc. G11C5/04.cpc. G11C7/1072.cpc. G11C15/00.cpc. with text limiting	03/25/2021	GB


CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

\* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.


Search Notes		
Search Notes	Date	Examiner
Text Search in EAST (See Attached)	03/25/2021	GB
NPL Search in Google Scholar (See Attached)	03/25/2021	GB
Inventor Search in PE2E	03/25/2021	GB

/GURTEJ BANSAL/ Primary Examiner, Art Unit 2139	
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<b><i>Search Notes</i></b> 	<b>Application/Control No.</b> 16/695,020	<b>Applicant(s)/Patent Under Reexamination</b> Solomon et al.
	<b>Examiner</b> GURTEJ BANSAL	<b>Art Unit</b> 2139

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	G06F13/1673.cpc. G06F12/00.cpc. G06F13/00.cpc . G06F13/4243.cpc. G06F13/4282.cpc. G11C5/04. cpc. G11C7/1072.cpc. G11C15/00.cpc.	03/25/2021	GB

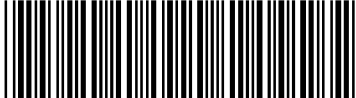
/GURTEJ BANSAL/ Primary Examiner, Art Unit 2139	
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<b>Issue Classification</b> 	<b>Application/Control No.</b> 16/695,020	<b>Applicant(s)/Patent Under Reexamination</b> Solomon et al.
	<b>Examiner</b> GURTEJ BANSAL	<b>Art Unit</b> 2139

CPC						
Symbol					Type	Version
G06F	/	13	/	1673	F	2013-01-01
G11C	/	5	/	04	I	2013-01-01
G06F	/	13	/	00	I	2013-01-01
G06F	/	12	/	00	I	2013-01-01
G06F	/	13	/	4243	I	2013-01-01
G06F	/	13	/	4282	I	2013-01-01
G11C	/	7	/	1072	I	2013-01-01
G11C	/	15	/	00	I	2013-01-01
Y02D	/	10	/	00	A	2018-01-01

CPC Combination Sets					
Symbol				Type	Set
	/		/		

NONE		<b>Total Claims Allowed:</b>	
(Assistant Examiner)	(Date)	15	
/GURTEJ BANSAL/ Primary Examiner, Art Unit 2139	25 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	9A

<b>Issue Classification</b> 	<b>Application/Control No.</b> 16/695,020	<b>Applicant(s)/Patent Under Reexamination</b> Solomon et al.
	<b>Examiner</b> GURTEJ BANSAL	<b>Art Unit</b> 2139


<b>INTERNATIONAL CLASSIFICATION</b>			
<b>CLAIMED</b>			
G06F	/	12	/ 00

<b>NON-CLAIMED</b>			
/		/	

<b>US ORIGINAL CLASSIFICATION</b>	
<b>CLASS</b>	<b>SUBCLASS</b>

<b>CROSS REFERENCES(S)</b>						
<b>CLASS</b>	<b>SUBCLASS (ONE SUBCLASS PER BLOCK)</b>					

NONE		<b>Total Claims Allowed:</b>	
(Assistant Examiner)	(Date)	15	
/GURTEJ BANSAL/ Primary Examiner, Art Unit 2139	25 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	9A

<b><i>Issue Classification</i></b> 	<b>Application/Control No.</b> 16/695,020	<b>Applicant(s)/Patent Under Reexamination</b> Solomon et al.
	<b>Examiner</b> GURTEJ BANSAL	<b>Art Unit</b> 2139

☒ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

**CLAIMS**

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE  (Assistant Examiner) _____ (Date) _____		<b>Total Claims Allowed:</b> 15	
/GURTEJ BANSAL/ Primary Examiner, Art Unit 2139 (Primary Examiner) _____ (Date) 25 March 2021		O.G. Print Claim(s) 1	O.G. Print Figure 9A

**Bibliographic Data**

Application No: 16/695,020

Foreign Priority claimed: ☐ Yes ☒ No35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged: /GURTEJ BANSAL/

Examiner's Signature

Initials

Title: MEMORY MODULE WITH DATA BUFFERING

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FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/25/2019	711	2139	129980-5023-US01
<b>RULE</b>			

**APPLICANTS**

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**CONTINUING DATA**

This application is a CON of 15857519 12/28/2017 PAT 10489314

15857519 is a CON of 14715486 05/18/2015 PAT 9858215

14715486 is a CON of 13971231 08/20/2013 PAT 9037774

13971231 is a CON of 13287081 11/01/2011 PAT 8516188

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11075395 has PRO of 60575595 05/28/2004

11075395 has PRO of 60550668 03/05/2004

**FOREIGN APPLICATIONS****IF REQUIRED, FOREIGN LICENSE GRANTED\*\***



12/13/2019

**STATE OR COUNTRY**

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**FILING FEE RECEIVED**

\$1,880